Utility Rate Economics

Developing Unit Cost for Combined Heat and Power Plants

Introduction

- Explore Utility Rate Development for CHP plants
- Speaker background & perspective from Utility, ESCO, Industry

Topics of Discussion

- Business Case
- Cost Components
- Allocating the Costs
- Billing & the Proforma

Business Case

- Criteria for procuring the plant and/or the commodity
- What is driving the decision/need
- Existing Situation & Risks

Business Case

- Ownership and Contract
  - Assets
  - Financing terms
  - O & M
  - Budget and Capital Planning

Risk Management

- What cost items can be controlled?
- Which party is responsible?
- Fuel cost management
- Distribution System
- Major repair & replacement
- Backup/Reliability
- Termination

Scope

Example

Business

- 20-yr Private Financing
- O&M contract
- Supply Agreement
- Equipment/Property Lease

Technical

- Electric power, Steam, Chilled water
- Natural Gas Turbine, HRSG and Absorption cooling
- Requirements
  - 37 million kwh
  - 250 million lbs steam
  - 900,000 ton-hrs cooling

Rate Development

- Capital Cost - $14 Million
- Fuel Cost - $2 Million
- O & M - $1.1 Million
- Which items are fixed/variable ?
- Who has direct responsibility?
- How to allocate?

Utility Cost Components

Cost Item (%)	Capital	O&M	Fuel
◆ Electricity	49%	35%	56%
◆ Steam	45%	60%	42%
◆ CHW	6%	5%	2%

Utility Cost Components

Cost Item ($)	Capital	O&M	Fuel	**Total**
Electricity	.735	.385	1.12	**2.240**
Steam	.675	.660	.840	**2.175**
CHW	.090	.055	.040	**0.185**
Total Annual	$1.5 M	$1.1 M	$ 2 M	

Total Annual Cost **$ 4.6 Million**

Proforma

Year 1

Cost Item

- Fixed

Or

- Variable?
- Who is Accountable?

Proforma

Year 1

Fixed

Capital Cost Pmt
Maintenance Contracts
Staffing
Operator OH & Profit

Variable (pass through)

Natural Gas, Fuel Oil
Water & Chemicals
Standby & Supplemental Electricity

Utility Cost Components

CHP Cost Item			
Electricity $	$2.24 /	37 Mkwh=	**$.06/kwh**
Steam $	$2.175 /	250k-klb=	**$8.70/klb**
CHW $	$ .185 /	1.5Mtnhr=	**$ .12/ton-hr**
Annual Total	$4.60 M		

Summary

- Understand the business case
- Address the Risks
- Co-author as much as possible
- Utilize flexible contracts